



Cliff Notes

The official newsletter of
Tonto National Monument
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“Building” for the Desert



Left: 700 year old cobble masonry wall at the Upper Cliff Dwelling. **Right:** Rammed earth sample wall.

The prehistoric people whose structures we protect and enjoy today didn’t have the choices we have for building materials. But the materials they used were some of the best possible for regulating desert temperatures.

Tonto National Monument is building a new administrative headquarters and will be using some of the same materials in the modern building. Where the prehistoric structures were made of stone, mud, and wood, the park’s new building will utilize “rammed earth” walls, in part to honor the cliff dwellings the park is charged to protect.

Rammed earth is an ancient building method brought up to date and used for its rustic beauty and energy efficiency. Rammed earth walls are triple the thickness of energy efficient wood frame walls. Built on a concrete foundation that keeps the earth walls off the ground, forms are erected in which a moistened mix of earth and cement are placed in shallow lifts and compacted (rammed). The resulting walls can be seal coated or stuccoed. A concrete bond beam is placed across the top of the walls upon which the roof is then built. What makes rammed earth an efficient material in desert climates is the thickness of the walls. Massive walls are not good insulators but are slow to change temperature. As the outside temperature changes from cool in the morning to hot in the afternoon, the inside surface of a high mass wall, particularly if properly shaded, stays constant or nearly constant at the average temperature of the two extremes. This reduces the need for artificial cooling in the summer. Because massive walls moderate temperature extremes toward an overall average, they are excellent in desert environments where average temperatures are relatively comfortable.

Monument staff will be building walls in the future with the help of interested volunteers. A schedule of wall-building days will be posted on our web site www.nps.gov/tont once the foundation is constructed.

Interested volunteers can call Chief Ranger Susan Hughes at 467-2241.

What Are Sustainable Design Principles?

In 1991, the National Park Service adopted a policy called the Sustainable Design Initiative, integrating principles that enable humans to live in harmony with the rest of the natural world, protecting biodiversity, and sharing habitats with other species.

The concept of sustainable design recognizes human civilization as an integral part of the natural world and the importance of preserving nature in order for humans to survive.

Sustainable design encourages the application of the principles of conservation in our daily lives in order to contribute to the health of air, water, and soils and reduce the impacts of human use on the natural world. Construction and development design choices are made with an eye toward making the least impact on natural and cultural resources.

Sustainability does not require a loss in the quality of life, but does require a change in mind-set, or a change in values toward less consumptive lifestyles.

Ideally, nothing should be brought into a resource-related development that is not either durable, biodegradable, or recyclable.

The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

--NPS MISSION STATEMENT

Doing Our Part for the Environment

Tonto National Monument has been becoming more energy efficient for several years and continues to find new ways to reduce the impact of our operations on the environment. We replaced all incandescent light bulbs with compact fluorescent bulbs to reduce power use. We purchase paper products with recycled content. We recycle aluminum cans from visitors and monument residents, and cardboard and paper from offices. Low-flow water fixtures are used throughout the monument and we have always used native plants to restore public areas disturbed by construction. These plants require no irrigation once they're established. A project to xeriscape the residential area of the monument will soon greatly reduce our water usage. We feel it's important to conserve as much water in the desert as we can.

Last year, the monument traded in a full-sized truck (15 mpg) for a hybrid sedan (45 mpg) and changed our vehicle policy to encourage use of the sedan for longer trips. The monument's small vehicle fleet still includes several trucks, but overall fleet fuel efficiency has improved by 17%, or from 15.0 mpg to 17.5 mpg. This can help reduce both demand for imported oil and greenhouse gas emissions.

This year, the monument began recycling clear plastic bottles, like water bottles, from visitors to keep them out of the landfill. We haul them to the Salt River landfill for recycling and, while that's a long haul, each trip is combined with other errands in the valley. Soon, we hope to add milk jugs and #2 plastics, like laundry soap jugs, to our residential recycling program to further reduce our contribution to the landfill.

There is still room for improvement -- we have a list of things we would like to do. We will continue to check items off that list as we can.



Park visitor Margaret Upton of Los Angeles using our new recycling bins.

Prehistoric Trash and Recycling

One of the most interesting places at any archaeological site is the trash midden. A midden at the Upper Cliff Dwelling was partially excavated in 1940, yielding important information about the occupants of the dwelling. For example, preserved human feces was found. Once analyzed, these unlikely artifacts help us learn about their prehistoric menu.

In comparison to today's landfills, they discarded little material. There were no cans, bottles, styrofoam or cardboard to dispose of. Just about everything was put to some useful purpose. For example, deer antlers were fashioned into a variety of tools.

Archaeologists discovered a pile of several hundred lima bean pods in the midden, the obvious result of harvesting and shelling activities. Nearby was a cache of mesquite beans. Had they spoiled, or had the inhabitants left quickly?

Modern man was not the first to recycle things. Our prehistoric predecessors frequently recycled the vigas, or large roof beams in their dwellings from older sites that were no longer occupied. That is why archaeologists use multiple methods to date sites. The date obtained from the tree rings of a roof beam tells you when the tree was cut down, not necessarily when the room or village was built. Broken pottery was often crushed and used for temper (added to the clay) when making new pottery to achieve the proper texture and added strength. These pottery bits, or sherds, were also used as spindle whorls for spinning cotton or, as scrapers. Corn cobs and other "waste" materials were often used for fuel in their firepits. Who knows, perhaps the Salado were the ones who coined the phrase, "Waste not, want not!" Regardless, we can learn many lessons from the Salado and their use and reuse of natural resources.

Calendar of Special Tours & Events 2006-2007

October

Sat. 7th 8 am	Early Bird Upper Cliff Dwelling Tour
Sat. 14th 8 am	Early Bird Upper Cliff Dwelling Tour
Sat. 21st 8 am	Early Bird Upper Cliff Dwelling Tour
Sat. 28th 8 am	Early Bird Upper Cliff Dwelling Tour

November

Sat.-Sun. 4-5th	OPEN HOUSE
Sat.18th 2 pm	Besh Ba Gowah Talk/Tour
Sat. 25th 2 pm	Schoolhouse Platform Mound Tour

December

Sat. 2nd 2 pm	Cline Terrace Tour
Tues. 5th 5 pm	Upper Cliff Dwelling Full Moon Hike

Tues.19th	Park Anniversary FEE FREE DAY
Sat. 30th 2 pm	Besh Ba Gowah Talk/Tour

January

Wed. 3rd 5 pm	Upper Cliff Dwelling Full Moon Hike
Sat. 6th 2 pm	Cline Terrace Tour
Sun. 14th 2 pm	Schoolhouse Platform Mound Tour
Sat. 27th 6 pm	Night Sky/Critters Program Lower Cliff Dwelling

February

Fri. 2nd 5:30 pm	Upper Cliff Dwelling Full Moon Hike
Fri. 2nd 6 pm	Tonto National Monument: The First 100 Years Bullion Plaza Cultural Center & Museum in Miami
Sat. 3rd 2 pm	Cline Terrace Tour
Sat. 10th 2 pm	Schoolhouse Platform Mound Tour
Sun.11th 2 pm	Besh Ba Gowah Talk/Tour

March

Sat. 3rd 5:30 pm	Upper Cliff Dwelling Full Moon Hike
Sat. 3rd 2 pm	Living History Program at Besh Ba Gowah
Sun. 11th 2 pm	Schoolhouse Platform Mound Tour
Sat.-Sun. 17-18th	OPEN HOUSE

April

Sat. 7th 11 am	Schoolhouse Platform Mound Tour
Sat. 21st 11 am	Besh Ba Gowah Talk/Tour

May

Sat. 5th 8 am	Early Bird Upper Cliff Dwelling Tour
Sat. 12th 8 am	Early Bird Upper Cliff Dwelling Tour
Sat. 19th 8 am	Early Bird Upper Cliff Dwelling Tour
Sat. 26th 8 am	Early Bird Upper Cliff Dwelling Tour

Call the Monument for further information and directions to off-site tour sites (928) 467-2241.

Upper Cliff Dwelling Tours

- Tours of the Upper Cliff Dwellings are offered every Saturday and Sunday from November through April. Mondays and Fridays are added as the season progresses to accommodate demand. See page 4 for more details.
- Early Bird tours of the Upper Cliff Dwelling are offered on Saturdays at 8 am in October and May.
- Full moon evening hikes to the Upper Cliff Dwelling will be offered from December through March. Hikers need to be fit to do this tour because of the quicker pace and darkness.

Open House

- Twice a year, the Upper Cliff Dwelling is open to visitors without a guide for an entire weekend. Uphill travel on the trail is allowed between the hours of 9 am and 2 pm. Regular fees will be charged both days during Open House weekends. There is no fee if you have a National Park pass, Golden Eagle, Golden Age, or Golden Access passport.

Ranger Talks and Living History

- Scheduled ranger talks will include a variety of subjects such as making twine out of native plants, rattlesnakes, Gila monsters, and medicinal and edible uses for native plants.
- The living history program will reenact the story of a school teacher in the Tonto Basin in the 1880’s who took her young students on a field trip to the cliff dwellings 125 years ago.

Off-Site Tours

- Off-site tours are offered through agreements with Tonto National Forest and Besh Ba Gowah Archaeological Park.
- The **Schoolhouse Platform Mound** site is unique in that it was occupied for over 100 years while most other settlements in the basin were smaller and were occupied only briefly. People from neighboring villages apparently moved to the Schoolhouse Platform Mound. Why?
 - The **Cline Terrace Platform Mound** site is similar to other sites along the Salt River but it also has several distinct characteristics. There is a massive compound wall around the complex, and many of the walls are faced with white gypsum. Why? The site must have been quite impressive in the moonlight.
 - **Besh Ba Gowah** is a reconstructed ruin located in the city of Globe. You can walk in the rooms, climb recreated ladders, and enter a typical living area. There is also a museum and ethnobotanical garden at Besh Ba Gowah. The site is on flat ground; there is a \$2.00 per person entry fee.



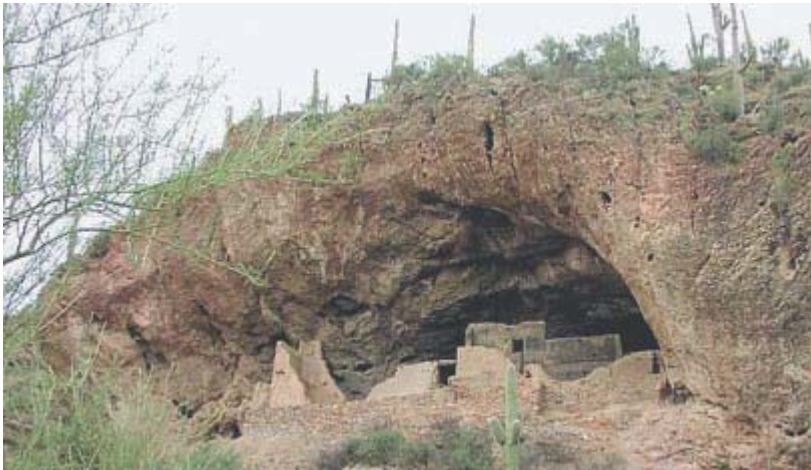
Visitors enjoy a tour of Besh Ba Gowah with Park Ranger Eddie Colyott .

Plan Your Visit

Tonto National Monument is located 30 miles northwest of Globe on Highway 188. Driving time from Phoenix, Scottsdale or Mesa is approximately 2 to 2 1/2 hours; from Tucson or Flagstaff 3 to 3 1/2 hours.

Self-Guided Lower Cliff Dwelling Trail

A paved trail winds its way through the Sonoran desert to the Lower Cliff Dwelling. You gain 350 vertical feet, so be prepared for a steep climb. Signs along the trail provide information about desert plants, the geology of the area, and the lives of the ancient Salado. There are several benches on the path. Sit and enjoy the beautiful view of Roosevelt Lake. Once you arrive at the dwelling, enjoy walking through homes that were last occupied 700 years ago. The Cactus Patch Trail branches off the main trail and ends in the parking lot. Learn how desert plants have adapted to desert conditions and how the Salado used these plants to provide food, shelter, and clothing. Bring water, sunscreen and a hat with you. The one mile roundtrip walk takes about an hour to complete so plan to arrive at the park no later than 4 pm. Allow extra time to visit the museum, bookstore, and watch the video.



Lower Cliff Dwelling

The Visitor Center has a small museum, bookstore, viewing deck, and 18 minute orientation video and is open daily (except Christmas Day) from 8 am to 5 pm. The park also has a picnic area for your enjoyment with restrooms.

Upper Cliff Dwelling Tours



Upper Cliff Dwelling

During the winter season (November through April), rangers give guided tours to the Upper Cliff Dwelling. Tours are offered every weekend. Additional weekday tours are added as visitation increases. This 3 mile roundtrip backcountry trail travels in a creekbed through a riparian area, then gains 600 feet in elevation by way of switchbacks. The tour lasts 3-3 1/2 hours. Reservations are required. There is no extra fee for the tour. Full moon hikes for experienced hikers to the Upper Cliff Dwelling are offered December through March. Reservations are required. **FOR RESERVATIONS OR INFORMATION CALL THE MONUMENT AT (928) 467-2241.**

See page 3 for a Schedule of Special Events & Tours.

Volunteers-In-Parks

The Monument is seeking volunteer assistance at the information desk and in the Lower Cliff Dwelling. Volunteers may also have the opportunity to help remove invasive plants, assist our archeologist with field work and archival research, or help with trail maintenance and other projects. During spring, summer and fall, you may assist in the field with ongoing reptile research.

If you are interested in any of these opportunities, contact our volunteer coordinator:
Susan Hughes, Chief Ranger (928) 467-2241.

Western National Parks Bookstore

Open daily 8 am to 5 pm (except Christmas Day)
WNPA members receive a 15% discount

Visit the online bookstore at www.wnpa.org



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